



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

June 16, 1999

MEMORANDUM

SUBJECT: **Tetrachlorvinphos.** (Chemical ID No. 083701/List A Reregistration Case No. 0321). Revised Acute and Chronic Dietary Exposure and Risk Analyses for the HED Human Health Risk Assessment. No MRID #. DP Barcode No. D256870.

FROM: Christina Swartz, Chemist
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THRU: David Soderberg (HED/RRB3)
Dietary Exposure Science Advisory Council

and

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Background/Action Requested

The tetrachlorvinphos human health risk assessment completed 11/2/98 (memo, C. Swartz, D249577) included acute and chronic (cancer and non-cancer) dietary risk analyses conducted using the Dietary Exposure Evaluation Model (DEEM™); resulting dietary (food only) exposure and risk estimates were below HED's level of concern.

The Biological and Economic Analysis Division (OPP/BEAD) has provided updated usage

information for livestock (T. Kiely, 5/99), and amended anticipated residues were generated (C. Olinger, 6/16/99). The new information should be incorporated into revised acute and chronic dietary exposure and risk analyses.

Executive Summary

Revised chronic (cancer and non-cancer) dietary exposure analyses were conducted, first using the time-limited tolerances, and second, using the revised anticipated residues, usage data and milk monitoring data. Revised acute analyses were conducted, first using time-limited tolerances, and then using acute anticipated residues; finally, a probabilistic acute dietary exposure analysis was conducted to incorporate the new usage data into the assessment.

Acute and chronic (cancer and non-cancer) dietary exposure and risk estimates for tetrachlorvinphos are below HED's level of concern at all levels of refinement; the dietary risk estimates are considered to be conservative, since time-limited tolerances were derived from metabolism data, and based on the conservative assumptions made in generating anticipated residues in livestock commodities.

For carcinogenic risk, use of time-limited tolerances resulted in a risk estimate of 7.94×10^{-6} (US population), which exceeds HED's level of concern of 1×10^{-6} (one in one million excess cancers); refinement with anticipated residues and usage data resulted in a risk estimate of 1.85×10^{-7} , which is below HED's level of concern.

Acute dietary exposure estimated using time-limited tolerances resulted in risks below HED's level of concern. The most highly exposed subgroup was children 1-6 years, with 52 %aPAD consumed at the 95th percentile of exposure; the exposure estimate for the general US population corresponded to 29 %aPAD consumed. Refinement of the acute dietary exposure estimates using anticipated residues resulted in 47 %aPAD for children 1-6 years, and 26 %aPAD for the general US population. A probabilistic analysis which incorporated livestock usage data reduced the risk for children 1-6 years to 40 %aPAD; the risk for the general US population was reduced to 22 %aPAD. Examination of the critical exposure contribution analysis revealed that exposure at the 99.9th percentile is largely due to consumption of meats (beef, poultry, pork).

Chronic non-cancer dietary exposure and risk estimates based on the recommended time-limited tolerances indicate that the most highly exposed population subgroup is children 1-6 years, with 21 % of the chronic Population Adjusted Dose (% cPAD) consumed. When refined anticipated residues and usage data were incorporated into the analysis, chronic dietary risk was estimated to be <1 %cPAD for the general US population and all population subgroups. Children 1-6 years had the highest estimated exposures, at 0.5 %cPAD.

Toxicological Information

Memoranda providing details of relevant toxicological information include the HIARC report dated 10/8/97, an RfD Peer Review Report dated 7/7/94, a TESC report dated 8/19/94, a Cancer Peer Review report dated 10/22/97, a HIARC reported dated 7/7/98, and the FQPA Safety Factor Committee report dated 8/6/98.

The FQPA safety factor was removed (reduced to 1X) for tetrachlorvinphos (see FQPA Safety Factor Recommendations for the Organophosphates, 8/6/98). A reference dose (RfD) which includes the FQPA safety factor (10X, 3X or 1X) is defined as the Population Adjusted Dose (PAD). In the case of tetrachlorvinphos, the acute and chronic PADs (aPAD and cPAD) for the general US population and various population subgroups are equivalent to the acute and chronic RfDs selected by the HIARC. Doses and endpoints for dietary risk assessment are presented in Table 1.

Table 1. Tetrachlorvinphos: Toxicological Doses and Endpoints for Dietary Risk Assessment.

EXPOSURE SCENARIO	NOAEL (mg/kg/day) Uncertainty Factors ¹	ENDPOINT (LOAEL, mg/kg/day)	STUDY	RfD/PAD ² (mg/kg/day)
Acute dietary	4.23 Conventional UF = 100X FQPA = 1X	Plasma/RBC ChEI at 13 weeks (43.2)	Subchronic Rat	aRfD = 0.0423 aPAD = 0.0423
Chronic dietary (non-cancer)	4.23 Conventional UF = 100X FQPA = 1X	Liver histological changes; adrenal changes (43.2)	Chronic Rat	cRfD = 0.0423 cPAD = 0.0423
Cancer	N/A	Adenomas/carcinomas, pheochromocytomas	Mouse Oncogenicity	Cancer potency factor (Q_1^*) = 1.83×10^{-3}

ChEI = cholinesterase inhibition; NOAEL = no observable adverse effects level; LOAEL = lowest observable adverse effects level; RBC = red blood cell.

¹ The conventional uncertainty factor of 100X includes 10X for interspecies extrapolation and 10X for intra-species variability.

² RfD = NOAEL/UF; PAD = RfD/FQPA SF.

Consumption Data

HED conducts dietary risk assessments using the Dietary Exposure Evaluation Model (DEEM™), which incorporates consumption data generated in USDA's Continuing Surveys of Food Intakes by Individuals (CSFII), 1989-1992. For acute dietary risk assessments, single day food consumption is combined with either a single residue level (deterministic analysis, risk at 95th percentile of exposure reported) or a distribution of residues (probabilistic analysis, referred to as "Monte Carlo," risk at 99.9th percentile of exposure reported) to obtain a distribution of exposure in mg/kg/day. For

chronic dietary risk assessments, the three-day average of consumption for each sub-population is combined with residues in commodities to determine average exposure in mg/kg/day.

Usage Data

Supported uses of the insecticide tetrachlorvinphos are limited to dermal and feed-through uses on livestock and domestic animals. An updated quantitative usage analysis for beef and dairy cattle was provided by BEAD/OPP; estimates for usage on swine, horses and poultry were derived from previous quantitative usage analyses (memo, T. Kiely, 5/99). The usage data are provided as Attachment 1; inclusion of the data in dietary exposure analyses is discussed below.

Monitoring Data

The US Department of Agriculture Food Safety and Inspection Service (USDA-FSIS) analyzed fat samples for residues of tetrachlorvinphos *per se* during the years 1993-1997 (S. Hummel, 6/2/98). The data indicate the potential for detectable residues, but was not used in risk assessment since muscle (meat) was not analyzed. Three samples showed detectable tetrachlorvinphos residues: a hog fat sample at 0.18 ppm, a dairy cow fat sample at 0.26 ppm, and a goat fat sample at 0.09 ppm.

The USDA Pesticide Data Program (PDP) analyzed 570 milk samples in 1996 and 727 in 1997 for residues of tetrachlorvinphos *per se*. No residues were detected in any sample at detection limits of 0.001-0.005 ppm. These data indicate the parent compound is not likely to be present in milk, but could not be used in the chronic and cancer risk assessments since samples were not analyzed for the metabolites. The milk monitoring data were included in the acute assessment.

Residue Information

HED has recommended revision of the tolerance expression [40 CFR §180.252] to include tetrachlorvinphos *per se* and its metabolites des-O-methyl tetrachlorvinphos, 1-(2,4,5-trichlorophenyl)ethanol (free and conjugated forms), 2,4,5-trichloroacetophenone, and 1-(2,4,5-trichlorophenyl)ethanediol. Time-limited tolerances for residues in livestock commodities must be maintained, based on feed-through and direct dermal uses on livestock; the recommended time-limited tolerances were determined from acceptable metabolism data (refer to the D. Miller memo dated 9/14/95), and exceed existing tolerances for some commodities. Permanent tolerances can be established when adequate magnitude of the residue data for ruminants, swine and poultry are submitted.

Anticipated residue estimates for acute and chronic dietary exposure analysis, generated in conjunction with the RED (4/1/98) and used in previous dietary risk analyses, have been updated with the revised usage information. Details regarding calculation of the anticipated residues are provided in the C. Olinger memo (6/16/99, D256476); the refined anticipated residues in livestock commodities are considered to be conservative because of the way in which the data were generated, and because no refinements were made for potential loss of residues during cooking/baking. The revised anticipated residues are summarized below, with inputs to the DEEM™ analysis and usage

information.

In the current chronic (cancer and non-cancer) analyses, the weighted average of percent livestock treated was used; for the acute analysis, the estimated (or likely) maximum of % livestock treated was used. This is a departure from previous HED policy, which dictated use of the estimated maximum % livestock/crop treated in all analyses. Additional guidance is forthcoming.

Acute Analysis

Three different acute analyses were conducted. First, a Tier 1 analysis was completed using the recommended time-limited tolerances. A second analysis was conducted using the acute anticipated residues in livestock commodities. Finally, a probabilistic analysis was completed using the acute anticipated residues and livestock usage data.

Generation of Residue Distribution Files (RDFs) for the Probabilistic Acute Analysis

For most livestock commodities, the RDF was composed of zeros corresponding to the % of livestock not treated, and the acute anticipated residue corresponding to the % livestock treated. The relevant RDFs are summarized in table 2. For several commodities, a different approach was used:

Cattle (beef) meat

Two anticipated residue values were generated: 1.86 ppm for the loin (application site in metabolism study), and 0.001 ppm for the round (remainder of carcass from the metabolism study). Since the loin value is expected to account for no more than 20% of meat residues, and the round value is expected to account for at least 80% of meat residues, the beef RDF is composed as follows:

zeros: 490 (estimated maximum of 2% head treated, therefore 98% are not treated)
8 @ 0.001 ppm
2 @ 1.86 ppm

Hog (pork) meat

Anticipated residues were the same as beef meat:

zeros: 323 (estimated maximum of 3% head treated; therefore 97 % are not treated)
8 @ 0.001 ppm
2 @ 1.86 ppm

Poultry meat

An equal probability was assumed for consumption of breast (0.37 ppm) and thigh, the application site in the poultry metabolism study (2.32 ppm):

zeros: 178 (estimated maximum of 11% treated; therefore 89% are not treated)

11 @ 0.37 ppm

11 @ 2.32 ppm

Milk

A total of 1,297 samples were analyzed by PDP and found to contain no detectable residues. The limits of detection (LODs) were as follows:

0.001 ppm for 474 samples

0.002 ppm for 353 samples

0.005 ppm for 470 samples

For non-detectable residues, HED uses $\frac{1}{2}$ the LOD in risk assessments. Therefore, the weighted average $\frac{1}{2}$ LOD of 0.00136 was used to create an RDF:

zeros: 994 (corresponding to 99.4 % head not treated)

6 @ 0.00136 (weighted average $\frac{1}{2}$ LOD from monitoring data, 0.6 % head treated).

Acute Analyses, Summary of Residue Inputs

The inputs to the acute DEEM™ analysis for tetrachlorvinphos *per se* are shown in Table 2. Default concentration factors were used (adjustment factor 1). The adjustment for percent livestock treated was made in the RDFs, and therefore adjustment factor 2, generally reserved for usage data, was set to 1. The RDFs and the acute residue inputs are shown in detail in the attachments.

Table 2. Summary of Inputs to the Acute DEEM™ Analysis.

Commodity	Time-Limited Tolerance (ppm) (Tier 1 DEEM™ input)	Acute Anticipated Residue (ppm) ¹	Acute Residue Input to DEEM™ (ppm) ²	Est. Max. % Livestock Treated ³	RDF for Probabilistic Analysis
Cattle meat	2	1.86 (loin) 0.001(round)	1.86 (loin) 0.001 (round)	2	490 Zeros 8 @ 0.001 ppm 2 @ 1.86 ppm
Cattle, Fat	0.2	0.06	0.06	2	98 Zeros 2 @ 0.06 ppm
Cattle, liver	0.5	<0.01	0.005	2	98 Zeros
Cattle, kidney	1	<0.01	0.005	2	2 @ 0.005 ppm
Eggs	0.2	0.03	0.03	11	89 Zeros 11 @ 0.03 ppm
Goats, meat	2	<0.01	0.005	31	69 Zeros 31 @ 0.005 ppm
Goats, Fat	0.2	<0.01	0.005	31	
Goats, liver	0.5	<0.01	0.005	31	
Goats, kidney	1	<0.01	0.005	31	
Hogs, meat	2	1.86 (loin) 0.001(round)	1.86 (loin) 0.001 (round)	3	323 Zeros 8 @ 0.001 ppm 2 @ 1.86 ppm
Hogs, fat	0.2	0.06	0.06	3	97 Zeros 3 @ 0.06 ppm
Hogs, liver	0.5	<0.01	0.005	3	97 Zeros
Hogs, kidney	1	<0.01	0.005	3	3 @ 0.005 ppm
Horses, meat	2	<0.01	0.005	31	69 Zeros 31 @ 0.005 ppm
Milk	0.05	0.0025	0.00136	0.6	994 Zeros 6 @ 0.00136 ppm
Poultry, meat	3	2.32 (thigh) 0.37 (breast)	2.32 (thigh) 0.37 (breast)	11	178 Zeros 11 @ 2.32 ppm 11 @ 0.37 ppm
Poultry, fat	7	6.1	6.1	11	89 Zeros 11 @ 6.1 ppm
Poultry, mbyp	2	<0.01	0.005	11	89 Zeros 11 @ 0.005 ppm

Table 2. Summary of Inputs to the Acute DEEM™ Analysis.

Commodity	Time-Limited Tolerance (ppm) (Tier 1 DEEM™ input)	Acute Anticipated Residue (ppm) ¹	Acute Residue Input to DEEM™ (ppm) ²	Est. Max. % Livestock Treated ³	RDF for Probabilistic Analysis
Sheep, meat	2	<0.01	0.005	31	69 Zeros 31 @ 0.005 ppm
Sheep, fat	0.2	<0.01	0.005	31	
Sheep, liver	0.5	<0.01	0.005	31	
Sheep, kidney	1	<0.01	0.005	31	

¹ Acute anticipated residues were summarized in 6/16/99 C. Olinger memo. In the absence of processing data, the DEEM™ default concentration factor (adjustment factor 1) was used for dried meat; all other DEEM™ default concentration factors were 1X.

² The actual DEEM™ inputs may differ from the AR--for residues reported as <0.01 ppm (less than the limit of quantitation, LOQ), residues of ½ LOQ (0.005 ppm) were used in the acute analysis.

³ Usage data were summarized in the 5/99 T. Kiely memo. The adjustment for estimated maximum %livestock treated was incorporated into the residue distribution files.

Chronic Analysis, Summary of Residue Inputs

Both chronic carcinogenic and chronic non-cancer dietary exposure and risk assessments were completed using the recommended time-limited tolerances and revised chronic anticipated residues. The inputs to the carcinogenic and chronic non-cancer analyses for tetrachlorvinphos and metabolites are shown in Table 3. Note that the anticipated residue values have not been adjusted for % livestock treated. The % livestock treated is entered (as a percentage) as adjustment factor 2 in the analysis. The DEEM™ default concentrations factors (adjustment factor 1) were used for dried meats; all other DEEM™ default concentration factors were 1X. Detailed residue inputs are shown in the attachments.

Table 3. Summary of Inputs to the Chronic DEEM™ Analysis.

Commodity	Time-Limited Tolerance (ppm)	Tetrachlorvinphos + Metabolites: Anticipated Residue Input to DEEM™ (ppm)	Adjustment Factor 2 [Weighted Ave. % Livestock Treated, entered as %-age]]
Cattle meat	2	0.382	0.01
Cattle, Fat	0.2	0.1	0.01
Cattle, liver	0.5	0.38	0.01
Cattle, kidney	1	0.5	0.01
Eggs	0.2	0.19	0.06
Goats, meat	2	0.01	0.16
Goats, Fat	0.2	0.10	0.16
Goats, liver	0.5	0.01	0.16
Goats, kidney	1	0.13	0.16
Hogs, meat	2	1.87	0.02
Hogs, fat	0.2	0.1	0.02
Hogs, liver	0.5	0.38	0.02
Hogs, kidney	1	0.5	0.02
Horses, meat	2	0.01	0.16
Milk	0.05	0.02	0.003
Poultry, meat	3	1.72	0.06
Poultry, fat	7	6.94	0.06
Poultry, mbyp	2	1.27	0.06
Sheep, meat	2	0.01	0.16
Sheep, fat	0.2	0.1	0.16
Sheep, liver	0.5	0.01	0.16
Sheep, kidney	1	0.13	0.16

Results

Carcinogenic Dietary Exposure/Risk

Use of reassessed tolerances in the exposure analysis resulted in an estimated carcinogenic risk of 7.94×10^{-6} for the general US population, which is above HED's level of concern of 1×10^{-6} , or one in a million excess cancers. Refinement of the exposure analysis with the updated percent livestock treated data resulted in an estimated carcinogenic dietary risk of 1.85×10^{-7} for the general US population, which is below HED's level of concern for carcinogenic dietary risk.

Acute Dietary Exposure/Risk

Use of time-limited tolerance-level residues in the assessment resulted in estimated dietary exposure corresponding to 29 %aPAD for the general US population, and 52 %aPAD for children 1-6 years old, the most highly exposed population subgroup (Table 4). Refinement of the analysis using anticipated residues resulted in an estimated exposure corresponding to 26 %aPAD for the general US population and 47 %aPAD for children 1-6 years old. Finally, the probabilistic analysis reduced estimated dietary risk to 22 %aPAD for the general US population, and 40 %aPAD for children 1-6 years. Examination of the critical exposure contribution analysis indicates that exposure at the 99.9th percentile is largely due to consumption of meat (beef, pork, poultry).

Chronic Non-Cancer Dietary Exposure/Risk

Estimated chronic dietary exposure/risk is below HED's level of concern at both levels of refinement. Use of reassessed tolerances results in a maximum risk of 21 % of the chronic PAD (%cPAD) for children 1-6 (Table 4); dietary risk for the general US population was estimated to be 10 %cPAD. Incorporation of usage data in the analyses results in dietary risk estimates <1 %cPAD for the general US population and various population subgroups. The most highly exposed subgroup was children 1-6, at 0.5 %cPAD.

Table 4. Acute and Chronic (Non-Cancer) Dietary Exposure/Risk.

Population Subgroup	Acute Time-Limited Tolerances (95th %-ile)		Acute Anticipated Residues (Deterministic) (95th %-ile)		Acute Anticipated Residues (Probabilistic) (99.9th %-ile)		Chronic Time-Limited Tolerances		Chronic Anticipated Residues	
	Exposure (mg/kg/day)	%aPAD	Exposure (mg/kg/day)	%aPAD	Exposure (mg/kg/day)	%aPAD	Exposure (mg/kg/day)	%cPAD	Exposure (mg/kg/day)	%cPAD
U.S. Population	0.012186	29	0.010912	26	0.009345	22	0.004339	10	0.000101	<1
All infants (<1 yr)	0.013767	33	0.011069	26	0.012012	28	0.002664	6.3	0.000061	<1
Nursing infants (<1 yr)	0.008179	19	0.007542	18	0.003347	7.9	0.000983	2.3	0.000013	<1
Non-nursing infants (<1 yr)	0.015706	37	0.012698	30	0.014303	34	0.003371	8.0	0.000082	<1
Children (1-6 yrs)	0.021908	52	0.019740	47	0.017076	40	0.008855	21	0.000197	<1
Children (7-12 yrs)	0.015250	36	0.013664	32	0.010971	26	0.006238	15	0.000143	<1
Females (13-19 yrs)	0.010088	24	0.009569	23	0.008237	19	0.003923	9.3	0.000091	<1
Females (20+ yrs)	0.008426	20	0.007943	19	0.006770	16	0.003217	7.6	0.000081	<1
Males (13-19 yrs)	0.010991	26	0.009788	23	0.008496	20	0.004595	11	0.000096	<1
Males (20+ yrs)	0.009821	23	0.009138	22	0.007606	18	0.003860	9.1	0.000089	<1

Attachments:

- Attachment 1: Quantitative Usage Analysis, 5/99 (T. Kiely, BEAD/OPP).
- Attachment 2: Residue Distribution Files for Probabilistic Analysis.
- Attachment 3: Acute Analysis, Time-Limited Tolerances.
- Attachment 4: Acute Analysis, Anticipated Residues (Deterministic).
- Attachment 5: Acute Analysis, Anticipated Residues.(Probabilistic).
- Attachment 6: Chronic (Non-Cancer) Analysis, Time-Limited Tolerances.
- Attachment 7: Chronic (Non-Cancer) Analysis, Anticipated Residues.
- Attachment 8: Carcinogenic Analysis, Time-Limited Tolerances.
- Attachment 9: Carcinogenic Analysis, Anticipated Residues.

Secondary Review: David Soderberg:06/15/99

cc: Reviewer (CSwartz); C. Olinger (HED/RRB1, 7509C); List A File; LaShonia Richardson (CEB1/HED, 7509C)
7509C:CSwartz:RRB1:CM2:Rm 722H:703 305 5877:06/13/99

Attachment 1: Quantitative Usage Analysis, 5/99 (T. Kiely, BEAD/OPP).

Quantitative Usage Analysis for Tetrachlorvinphos

AI Code: 83701 Case Number: 0321
Analyst: Tim Kiely QUA Date: 5/99

Based on available pesticide survey usage information , an annual estimate of tetrachlorvinphos' total domestic usage is approximately 845,000 pounds active ingredient (a.i.) for 475,000,000 animals treated. Tetrachlorvinphos is an insecticide with its largest market in terms of total pounds a.i. allocated to poultry. The sites with a high percentage of their total U.S. animals treated include horses (16%), and households with dog and/or cat (10%).

This quantitative usage analysis updates estimates provided in an earlier BEAD usage profile (E. Brandt (4/98), and G. Ali (8/95).

Attachment 1: Quantitative Usage Analysis, 5/99 (T. Kiely, BEAD/OPP).

Tetrachlorvinphos QUA
Filename: Tetrach9.wpd

AI Code: 83701

Case Number: 0321

Analyst: Tim Kiely

QUA Date: 4/98
Revised: 5/99

Site	Number of Animals (000)	Number of Animals Treated (000)		% of Animals Treated		LB AI Applied (000)		Application Rate lb ai/animal
		Wtd Avg	Est Max	Wtd Avg	Est Max	Wtd Avg	Est Max	
Beef Cattle	84	1	2	1%	2%	38	76	0.0417
Dairy Cattle	16	0.05	0.10	0.3%	0.6%	2	4	0.0417
Horses ²	2	0.4	1	16%	31%	7	14	0.0185
Poultry ²	8,471	466	932	6%	11%	728	1,456	0.0016
Sheep	8	--	--	--	--	--	--	--
Swine ²	143	2	4	2%	3%	45	89	0.0208
Households with dog and/or cat	58	6	12	10%	21%	25	50	0.0041
Households, outdoors	100	--	--	--	--	--	--	--
Farm or agricultural structures	--	--	--	--	--	--	--	--
Manure	--	--	--	--	--	--	--	--
Mink	--	--	--	--	--	--	--	--
Garbage dumps	--	--	--	--	--	--	--	--
Recreational Areas	--	--	--	--	--	--	--	--
Totals		475	951			845	1,689	

Attachment 1: Quantitative Usage Analysis, 5/99 (T. Kiely, BEAD/OPP).

Notes:

Calculations of the above numbers may not appear to agree because they are displayed as rounded:

- to the nearest 1000 animals treated or lb ai applied (therefore, 0=<500),
- to the whole percentage point of percent of animals treated (therefore, 0%=.05%).

-- Denotes that information on this site is not available in EPA sources or is insufficient.

1. The estimates for pounds ai per animal for each site are taken from product labels. For cattle the formulation is the spray; for horses the formulation is the feed through; for poultry the formulation is the dust; for swine the formulation is the spray; and for dogs and cats the formulation is the dust (rate for a large dog).
2. Estimates for usage on Horses, Poultry, and Swine are based on previous quantitative usage assessments (E. Brandt (4/98) and G. Ali (8/95)).

Sources:

USDA, 1997 Census of Agriculture.

USDA, NASS, '1997 Agricultural Chemical Use Estimates for Livestock and General Farm Use'.

USDA, 'Statistical Highlights of U.S. Agriculture, '98 and '99'.

EPA proprietary data.

Attachment 2: Residue Distribution Files for Probabilistic Analysis.

Tetrachlorvinphos Beef Fat RDF

TOTALZ=98

2,0.2

Tetrachlorvinphos Hog meat RDF

TOTALZ=323

8,0.001

2,1.86

Tetrachlorvinphos Beef Meat RDF

TOTALZ=490

8,0.001

2,1.86

Tetrachlorvinphos Goats (all commodities); horsemeat;

sheep (all)

TOTALZ=69

31,0.005

Tetrachlorvinphos Beef Liver/Kidney RDF

TOTALZ=98

2,0.005

Tetrachlorvinphos Poultry Fat RDF

TOTALZ=89

11,6.1

Tetrachlorvinphos Milk RDF

TOTALZ=994

6,0.000136

Tetrachlorvinphos Poultry MBYP RDF

TOTALZ=89

11,0.005

Tetrachlorvinphos Hog Fat RDF

TOTALZ=97

3,0.06

Tetrachlorvinphos Poultry meat RDF

TOTALZ=178

11,2.32

11,0.37

Tetrachlorvinphos Hog MBYP RDF

TOTALZ=97

3,0.005

Tetrachlorvinphos Eggs RDF

TOTALZ=89

11,0.03

Attachment 3: Acute Analysis, Time-Limited Tolerances.

U.S. Environmental Protection Agency
 DEEM Acute analysis for TETRACHLORVINPHOS
 Residue file name: C:\DRESSAC\083701r.R96
 Analysis Date 06-14-1999
 Reference dose: aRFD = 0.0423 mg/kg bw/day NOEL = 4.23 mg/kg bw/day
 Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA;
 time-limited tolerances, no adjustments.

Food Crop Grp	Food Name	RESIDUE (ppm)	Adj. Factors Code	
			#1	#2
317 O	Gelatin	2.000000	1.000	1.000
318 D	Milk-nonfat solids	0.050000	1.000	1.000
319 D	Milk-fat solids	0.050000	1.000	1.000
320 D	Milk sugar (lactose)	0.050000	1.000	1.000
321 M	Beef-meat byproducts	1.000000	1.000	1.000
322 M	Beef-other organ meats	1.000000	1.000	1.000
323 M	Beef-dried	2.000000	1.920	1.000
324 M	Beef-fat w/o bones	0.200000	1.000	1.000
325 M	Beef-kidney	1.000000	1.000	1.000
326 M	Beef-liver	0.500000	1.000	1.000
327 M	Beef-lean (fat/free) w/o bones	2.000000	1.000	1.000
328 M	Goat-meat byproducts	1.000000	1.000	1.000
329 M	Goat-other organ meats	1.000000	1.000	1.000
330 M	Goat-fat w/o bone	0.200000	1.000	1.000
331 M	Goat-kidney	1.000000	1.000	1.000
332 M	Goat-liver	0.500000	1.000	1.000
333 M	Goat-lean (fat/free) w/o bone	2.000000	1.000	1.000
334 M	Horsemeat	2.000000	1.000	1.000
336 M	Sheep-meat byproducts	1.000000	1.000	1.000
337 M	Sheep-other organ meats	1.000000	1.000	1.000
338 M	Sheep-fat w/o bone	0.200000	1.000	1.000
339 M	Sheep-kidney	1.000000	1.000	1.000
340 M	Sheep-liver	0.500000	1.000	1.000
341 M	Sheep-lean (fat free) w/o bone	2.000000	1.000	1.000
342 M	Pork-meat byproducts	1.000000	1.000	1.000
343 M	Pork-other organ meats	1.000000	1.000	1.000
344 M	Pork-fat w/o bone	0.200000	1.000	1.000
345 M	Pork-kidney	1.000000	1.000	1.000
346 M	Pork-liver	0.500000	1.000	1.000
347 M	Pork-lean (fat free) w/o bone	2.000000	1.000	1.000
355 P	Turkey-byproducts	2.000000	1.000	1.000
356 P	Turkey-giblets (liver)	2.000000	1.000	1.000
357 P	Turkey--fat w/o bones	7.000000	1.000	1.000
358 P	Turkey- lean/fat free w/o bones	3.000000	1.000	1.000
360 P	Poultry-other-lean (fat free) w/	3.000000	1.000	1.000
361 P	Poultry-other-giblets(liver)	2.000000	1.000	1.000
362 P	Poultry-other-fat w/o bones	7.000000	1.000	1.000
363 P	Eggs-whole	0.200000	1.000	1.000
364 P	Eggs-white only	0.200000	1.000	1.000
365 P	Eggs-yolk only	0.200000	1.000	1.000
366 P	Chicken-byproducts	2.000000	1.000	1.000
367 P	Chicken-giblets(liver)	2.000000	1.000	1.000
368 P	Chicken-fat w/o bones	7.000000	1.000	1.000
369 P	Chicken-lean/fat free w/o bones	2.000000	1.000	1.000
385 P	Chicken-giblets (excl. liver)	2.000000	1.000	1.000
398 D	Milk-based water	0.050000	1.000	1.000
424 M	Veal-fat w/o bones	0.200000	1.000	1.000
425 M	Veal-lean (fat free) w/o bones	2.000000	1.000	1.000
426 M	Veal-kidney	1.000000	1.000	1.000
427 M	Veal-liver	0.500000	1.000	1.000
428 M	Veal-other organ meats	1.000000	1.000	1.000
429 M	Veal-dried	2.000000	1.920	1.000
430 M	Veal-meat byproducts	1.000000	1.000	1.000

Attachment 3: Acute Analysis, Time-Limited Tolerances.

449 P	Turkey-other organ meats	2.000000	1.000	1.000
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U.S. Environmental Protection Agency
DEM ACUTE analysis for TETRACHLORVINPHOS
Residue file: 083701r.R96
Analysis Date: 06-14-1999/07:29:30 Residue file dated: 06-11-1999/16:08:53/8
Acute Reference Dose (aRfD) = 0.042300 mg/kg body-wt/day
NOEL (Acute) = 4.230000 mg/kg body-wt/day
Run Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species
, 1X for FQPA; time-limited tolerances, no adjustments.
=====

Summary calculations:

	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
U.S. pop - all seasons:						
0.012186	28.81	347	0.019838	46.90	213	0.032237
All infants (<1 year):						
0.013767	32.55	307	0.030368	71.79	139	0.060222
Nursing infants (<1 year):						
0.008179	19.34	517	0.014347	33.92	294	0.020780
Non-nursing infants (<1 yr):						
0.015706	37.13	269	0.036180	85.53	116	0.062803
Children (1-6 years):						
0.021908	51.79	193	0.030199	71.39	140	0.045194
Children (7-12 years):						
0.015250	36.05	277	0.021515	50.86	196	0.034981
Females (13-19 yrs/np/nn):						
0.010088	23.85	419	0.015472	36.58	273	0.020074
Females (20+ years/np/nn):						
0.008426	19.92	502	0.012758	30.16	331	0.021304
Males (13-19 years):						
0.010991	25.98	384	0.017019	40.23	248	0.022182
Males (20+ years):						
0.009821	23.22	430	0.014546	34.39	290	0.021869

Attachment 4: Acute Analysis, Anticipated Residues (Deterministic).

U.S. Environmental Protection Agency
 DEEM Acute analysis for TETRACHLORVINPHOS
 Residue file name: C:\DRESSAC\083701m.R96
 Analysis Date 06-16-1999
 Reference dose: aRFD = 0.0423 mg/kg bw/day NOEL = 4.23 mg/kg bw/day
 Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA;
 Analysis includes acute ARs, but not probabilistic.

Ver. 6.78
 1989-92 data
 Adjust. #2 NOT used

Residue file dated: 06-16-1999/12:34:28/8

Food	Crop		RESIDUE	RDF	Adj.	Factors	Code
Grp		Food Name	(ppm)	#	#1	#2	
317	O	Gelatin	0.003820	1	1.000	1.000	
318	D	Milk-nonfat solids	0.001360	9	1.000	1.000	
319	D	Milk-fat solids	0.001360	9	1.000	1.000	
320	D	Milk sugar (lactose)	0.001360	9	1.000	1.000	
321	M	Beef-meat byproducts	0.005000	3	1.000	1.000	
322	M	Beef-other organ meats	0.005000	3	1.000	1.000	
323	M	Beef-dried	1.860000	1	1.920	1.000	
324	M	Beef-fat w/o bones	0.060000	2	1.000	1.000	
325	M	Beef-kidney	0.005000	3	1.000	1.000	
326	M	Beef-liver	0.005000	3	1.000	1.000	
327	M	Beef-lean (fat/free) w/o bones	1.860000	1	1.000	1.000	
328	M	Goat-meat byproducts	0.005000	8	1.000	1.000	
329	M	Goat-other organ meats	0.005000	8	1.000	1.000	
330	M	Goat-fat w/o bone	0.005000	8	1.000	1.000	
331	M	Goat-kidney	0.005000	8	1.000	1.000	
332	M	Goat-liver	0.005000	8	1.000	1.000	
333	M	Goat-lean (fat/free) w/o bone	0.005000	8	1.000	1.000	
334	M	Horsemeat	0.005000	8	1.000	1.000	
336	M	Sheep-meat byproducts	0.005000	8	1.000	1.000	
337	M	Sheep-other organ meats	0.005000	8	1.000	1.000	
338	M	Sheep-fat w/o bone	0.005000	8	1.000	1.000	
339	M	Sheep-kidney	0.005000	8	1.000	1.000	
340	M	Sheep-liver	0.005000	8	1.000	1.000	
341	M	Sheep-lean (fat free) w/o bone	0.005000	8	1.000	1.000	
342	M	Pork-meat byproducts	0.005000	11	1.000	1.000	
343	M	Pork-other organ meats	0.005000	11	1.000	1.000	
344	M	Pork-fat w/o bone	0.060000	10	1.000	1.000	
345	M	Pork-kidney	0.005000	11	1.000	1.000	
346	M	Pork-liver	0.005000	11	1.000	1.000	
347	M	Pork-lean (fat free) w/o bone	1.860000	12	1.000	1.000	
355	P	Turkey-byproducts	0.005000	4	1.000	1.000	
356	P	Turkey-giblets (liver)	0.005000	4	1.000	1.000	
357	P	Turkey--fat w/o bones	6.100000	5	1.000	1.000	
358	P	Turkey- lean/fat free w/o bones	2.320000	6	1.000	1.000	
360	P	Poultry-other-lean (fat free) w/	2.320000	6	1.000	1.000	
361	P	Poultry-other-giblets(liver)	0.005000	4	1.000	1.000	
362	P	Poultry-other-fat w/o bones	6.100000	5	1.000	1.000	
363	P	Eggs-whole	0.030000	7	1.000	1.000	
364	P	Eggs-white only	0.030000	7	1.000	1.000	
365	P	Eggs-yolk only	0.030000	7	1.000	1.000	
366	P	Chicken-byproducts	0.005000	4	1.000	1.000	
367	P	Chicken-giblets(liver)	0.005000	4	1.000	1.000	
368	P	Chicken-fat w/o bones	6.100000	5	1.000	1.000	
369	P	Chicken-lean/fat free w/o bones	2.320000	6	1.000	1.000	
385	P	Chicken-giblets (excl. liver)	0.005000	4	1.000	1.000	
398	D	Milk-based water	0.001360	9	1.000	1.000	
424	M	Veal-fat w/o bones	0.060000	2	1.000	1.000	
425	M	Veal-lean (fat free) w/o bones	1.860000	1	1.000	1.000	
426	M	Veal-kidney	0.005000	3	1.000	1.000	
427	M	Veal-liver	0.005000	3	1.000	1.000	
428	M	Veal-other organ meats	0.005000	3	1.000	1.000	
429	M	Veal-dried	1.860000	1	1.920	1.000	
430	M	Veal-meat byproducts	0.005000	3	1.000	1.000	

Attachment 4: Acute Analysis, Anticipated Residues (Deterministic).

449 P Turkey-other organ meats	0.005000	4	1.000	1.000
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U.S. Environmental Protection Agency Ver. 6.78
DEEM ACUTE analysis for TETRACHLORVINPHOS (1989-92 data)
Residue file: 083701m.R96 Adjustment factor #2 NOT used.
Analysis Date: 06-16-1999/12:37:35 Residue file dated: 06-16-1999/12:34:28/8
Acute Reference Dose (aRfD) = 0.042300 mg/kg body-wt/day
NOEL (Acute) = 4.230000 mg/kg body-wt/day
Run Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species,
, 1X for FQPA; Analysis includes acute ARs, but not probabilistic.
=====

Summary calculations:

Exposure	95th Percentile		99th Percentile		99.9th Percentile			
	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
U.S. pop - all seasons:								
0.010912	25.80	387	0.018170	42.95	232	0.029872	70.62	141
All infants (<1 year):								
0.011069	26.17	382	0.024836	58.71	170	0.049865	117.88	84
Nursing infants (<1 year):								
0.007542	17.83	560	0.012210	28.87	346	0.019507	46.12	216
Non-nursing infants (<1 yr):								
0.012698	30.02	333	0.028989	68.53	145	0.052227	123.47	80
Children (1-6 years):								
0.019740	46.67	214	0.028138	66.52	150	0.041631	98.42	101
Children (7-12 years):								
0.013664	32.30	309	0.020209	47.78	209	0.036981	87.43	114
Females (13-19 yrs/np/nn):								
0.009569	22.62	442	0.014740	34.85	286	0.020512	48.49	206
Females (20+ years/np/nn):								
0.007943	18.78	532	0.012263	28.99	344	0.019012	44.95	222
Males (13-19 years):								
0.009788	23.14	432	0.015650	37.00	270	0.020939	49.50	202
Males (20+ years):								
0.009138	21.60	462	0.014098	33.33	300	0.021971	51.94	192

Attachment 5: Acute Analysis, Anticipated Residues (Probabilistic).

U.S. Environmental Protection Agency
 DEEM Acute analysis for TETRACHLORVINPHOS
 Residue file name: C:\DRESSAC\083701m.R96
 Analysis Date 06-16-1999
 Reference dose: aRFD = 0.0423 mg/kg bw/day NOEL = 4.23 mg/kg bw/day
 Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA;
 Analysis includes acute ARs, probabilistic analysis

RDF indices and file names for Monte Carlo Analysis

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1 Tcbfmeat.rdf
2 Tcbffat.rdf
3 Tcbfmbyp.rdf
4 Tcptmbyp.rdf
5 Tcptfat.rdf
6 Tcptmeat.rdf
7 Tceggs.rdf
8 Tcgths.rdf
9 Tcmilk.rdf
10 Tchgfat.rdf
11 Tchgbyp.rdf
12 Tchgmeat.rdf
  
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Food	Crop		RESIDUE	RDF	Adj.Factors	Code
Grp		Food Name	(ppm)	#	#1	#2
317	O	Gelatin	0.003820	1	1.000	1.000
318	D	Milk-nonfat solids	0.001360	9	1.000	1.000
319	D	Milk-fat solids	0.001360	9	1.000	1.000
320	D	Milk sugar (lactose)	0.001360	9	1.000	1.000
321	M	Beef-meat byproducts	0.005000	3	1.000	1.000
322	M	Beef-other organ meats	0.005000	3	1.000	1.000
323	M	Beef-dried	1.860000	1	1.920	1.000
324	M	Beef-fat w/o bones	0.060000	2	1.000	1.000
325	M	Beef-kidney	0.005000	3	1.000	1.000
326	M	Beef-liver	0.005000	3	1.000	1.000
327	M	Beef-lean (fat/free) w/o bones	1.860000	1	1.000	1.000
328	M	Goat-meat byproducts	0.005000	8	1.000	1.000
329	M	Goat-other organ meats	0.005000	8	1.000	1.000
330	M	Goat-fat w/o bone	0.005000	8	1.000	1.000
331	M	Goat-kidney	0.005000	8	1.000	1.000
332	M	Goat-liver	0.005000	8	1.000	1.000
333	M	Goat-lean (fat/free) w/o bone	0.005000	8	1.000	1.000
334	M	Horsemeat	0.005000	8	1.000	1.000
336	M	Sheep-meat byproducts	0.005000	8	1.000	1.000
337	M	Sheep-other organ meats	0.005000	8	1.000	1.000
338	M	Sheep-fat w/o bone	0.005000	8	1.000	1.000
339	M	Sheep-kidney	0.005000	8	1.000	1.000
340	M	Sheep-liver	0.005000	8	1.000	1.000
341	M	Sheep-lean (fat free) w/o bone	0.005000	8	1.000	1.000
342	M	Pork-meat byproducts	0.005000	11	1.000	1.000
343	M	Pork-other organ meats	0.005000	11	1.000	1.000
344	M	Pork-fat w/o bone	0.060000	10	1.000	1.000
345	M	Pork-kidney	0.005000	11	1.000	1.000
346	M	Pork-liver	0.005000	11	1.000	1.000
347	M	Pork-lean (fat free) w/o bone	1.860000	12	1.000	1.000
355	P	Turkey-byproducts	0.005000	4	1.000	1.000
356	P	Turkey-giblets (liver)	0.005000	4	1.000	1.000
357	P	Turkey--fat w/o bones	6.100000	5	1.000	1.000
358	P	Turkey- lean/fat free w/o bones	2.320000	6	1.000	1.000
360	P	Poultry-other-lean (fat free) w/	2.320000	6	1.000	1.000
361	P	Poultry-other-giblets(liver)	0.005000	4	1.000	1.000
362	P	Poultry-other-fat w/o bones	6.100000	5	1.000	1.000
363	P	Eggs-whole	0.030000	7	1.000	1.000
364	P	Eggs-white only	0.030000	7	1.000	1.000

Attachment 5: Acute Analysis, Anticipated Residues (Probabilistic).

365 P	Eggs-yolk only	0.030000	7	1.000	1.000
366 P	Chicken-byproducts	0.005000	4	1.000	1.000
367 P	Chicken-giblets(liver)	0.005000	4	1.000	1.000
368 P	Chicken-fat w/o bones	6.100000	5	1.000	1.000
369 P	Chicken-lean/fat free w/o bones	2.320000	6	1.000	1.000
385 P	Chicken-giblets (excl. liver)	0.005000	4	1.000	1.000
398 D	Milk-based water	0.001360	9	1.000	1.000
424 M	Veal-fat w/o bones	0.060000	2	1.000	1.000
425 M	Veal-lean (fat free) w/o bones	1.860000	1	1.000	1.000
426 M	Veal-kidney	0.005000	3	1.000	1.000
427 M	Veal-liver	0.005000	3	1.000	1.000
428 M	Veal-other organ meats	0.005000	3	1.000	1.000
429 M	Veal-dried	1.860000	1	1.920	1.000
430 M	Veal-meat byproducts	0.005000	3	1.000	1.000
449 P	Turkey-other organ meats	0.005000	4	1.000	1.000

Summary of Residue Distribution Files (RDF) listed in C:\DRESSAC\083701m.R96

RDF #	File Name	N residues w freq's	N residues w/o freq's	N LODs	LOD Value	N Zeros
1	Tcbfmeat.rdf	2	0	0	0	490
2	Tcbffat.rdf	1	0	0	0	98
3	Tcbfmbyp.rdf	1	0	0	0	98
4	Tcptmbyp.rdf	1	0	0	0	89
5	Tcptfat.rdf	1	0	0	0	89
6	Tcptmeat.rdf	2	0	0	0	178
7	Tceggs.rdf	1	0	0	0	89
8	Tcgths.rdf	1	0	0	0	69
9	Tcmilk.rdf	1	0	0	0	994
10	Tchgfat.rdf	1	0	0	0	97
11	Tchgbyp.rdf	1	0	0	0	97
12	Tchgmeat.rdf	2	0	0	0	323

Attachment 5: Acute Analysis, Anticipated Residues (Probabilistic).

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for TETRACHLORVINPHOS
 Residue file: 083701m.R96 Ver. 6.78
 Adjustment factor #2 NOT used.
 (1989-92 data)
 Analysis Date: 06-16-1999/14:22:51 Residue file dated: 06-16-1999/12:34:28/8
 Acute Reference Dose (aRfD) = 0.042300 mg/kg body-wt/day
 NOEL (Acute) = 4.230000 mg/kg body-wt/day
 MC iterations = 1000 MC list in residue file MC seed = 1026
 Run Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species
 , 1X for FQPA; Analysis includes acute ARs, probabilistic analysis
 =====

Summary calculations:

	95th Percentile			99th Percentile			99.9th Percentile		
	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
<hr/>									
U.S. pop - all seasons:									
0.000579	1.37	7308		0.003299	7.80	1282	0.009345	22.09	452
All infants (<1 year):									
0.000071	0.17	59607		0.002553	6.04	1656	0.012012	28.40	352
Nursing infants (<1 year):									
0.000000	0.00	>1000000		0.000074	0.17	57545	0.003347	7.91	1263
Non-nursing infants (<1 yr):									
0.000302	0.71	14021		0.003211	7.59	1317	0.014303	33.81	295
Children (1-6 years):									
0.001203	2.84	3515		0.006474	15.30	653	0.017076	40.37	247
Children (7-12 years):									
0.000922	2.18	4586		0.004728	11.18	894	0.010971	25.94	385
Females (13-19 yrs/np/nn):									
0.000563	1.33	7514		0.002987	7.06	1415	0.008237	19.47	513
Females (20+ years/np/nn):									
0.000494	1.17	8554		0.002823	6.67	1498	0.006770	16.00	624
Males (13-19 years):									
0.000579	1.37	7305		0.003139	7.42	1347	0.008496	20.09	497
Males (20+ years):									
0.000512	1.21	8268		0.002877	6.80	1470	0.007606	17.98	556

Attachment 6: Chronic (Non-Cancer) Analysis, Time-Limited Tolerances.

U.S. Environmental Protection Agency
 DEEM Chronic analysis for TETRACHLORVINPHOS
 Residue file: C:\DRESSAC\083701r.R96
 Analysis Date 06-11-1999
 Reference dose (RfD) = 0.0423 mg/kg bw/day
 Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA;
 time-limited tolerances; no adjustments

Food	Crop	Code	Grp	Food Name	RESIDUE (ppm)	Adj. Factors	
						#1	#2
317	O			Gelatin	2.000000	1.000	1.000
318	D			Milk-nonfat solids	0.050000	1.000	1.000
319	D			Milk-fat solids	0.050000	1.000	1.000
320	D			Milk sugar (lactose)	0.050000	1.000	1.000
321	M			Beef-meat byproducts	1.000000	1.000	1.000
322	M			Beef-other organ meats	1.000000	1.000	1.000
323	M			Beef-dried	2.000000	1.920	1.000
324	M			Beef-fat w/o bones	0.200000	1.000	1.000
325	M			Beef-kidney	1.000000	1.000	1.000
326	M			Beef-liver	0.500000	1.000	1.000
327	M			Beef-lean (fat/free) w/o bones	2.000000	1.000	1.000
328	M			Goat-meat byproducts	1.000000	1.000	1.000
329	M			Goat-other organ meats	1.000000	1.000	1.000
330	M			Goat-fat w/o bone	0.200000	1.000	1.000
331	M			Goat-kidney	1.000000	1.000	1.000
332	M			Goat-liver	0.500000	1.000	1.000
333	M			Goat-lean (fat/free) w/o bone	2.000000	1.000	1.000
334	M			Horsemeat	2.000000	1.000	1.000
336	M			Sheep-meat byproducts	1.000000	1.000	1.000
337	M			Sheep-other organ meats	1.000000	1.000	1.000
338	M			Sheep-fat w/o bone	0.200000	1.000	1.000
339	M			Sheep-kidney	1.000000	1.000	1.000
340	M			Sheep-liver	0.500000	1.000	1.000
341	M			Sheep-lean (fat free) w/o bone	2.000000	1.000	1.000
342	M			Pork-meat byproducts	1.000000	1.000	1.000
343	M			Pork-other organ meats	1.000000	1.000	1.000
344	M			Pork-fat w/o bone	0.200000	1.000	1.000
345	M			Pork-kidney	1.000000	1.000	1.000
346	M			Pork-liver	0.500000	1.000	1.000
347	M			Pork-lean (fat free) w/o bone	2.000000	1.000	1.000
355	P			Turkey-byproducts	2.000000	1.000	1.000
356	P			Turkey-giblets (liver)	2.000000	1.000	1.000
357	P			Turkey--fat w/o bones	7.000000	1.000	1.000
358	P			Turkey- lean/fat free w/o bones	3.000000	1.000	1.000
360	P			Poultry-other-lean (fat free) w/	3.000000	1.000	1.000
361	P			Poultry-other-giblets(liver)	2.000000	1.000	1.000
362	P			Poultry-other-fat w/o bones	7.000000	1.000	1.000
363	P			Eggs-whole	0.200000	1.000	1.000
364	P			Eggs-white only	0.200000	1.000	1.000
365	P			Eggs-yolk only	0.200000	1.000	1.000
366	P			Chicken-byproducts	2.000000	1.000	1.000
367	P			Chicken-giblets(liver)	2.000000	1.000	1.000
368	P			Chicken-fat w/o bones	7.000000	1.000	1.000
369	P			Chicken-lean/fat free w/o bones	2.000000	1.000	1.000
385	P			Chicken-giblets (excl. liver)	2.000000	1.000	1.000
398	D			Milk-based water	0.050000	1.000	1.000
424	M			Veal-fat w/o bones	0.200000	1.000	1.000
425	M			Veal-lean (fat free) w/o bones	2.000000	1.000	1.000
426	M			Veal-kidney	1.000000	1.000	1.000
427	M			Veal-liver	0.500000	1.000	1.000
428	M			Veal-other organ meats	1.000000	1.000	1.000
429	M			Veal-dried	2.000000	1.920	1.000
430	M			Veal-meat byproducts	1.000000	1.000	1.000

Attachment 6: Chronic (Non-Cancer) Analysis, Time-Limited Tolerances.

449 P Turkey-other organ meats 2.000000 1.000 1.000

U.S. Environmental Protection Agency Ver. 6.76
DEEM Chronic analysis for TETRACHLORVINPHOS (1989-92 data)
Residue file name: C:\DRESSAC\083701r.R96 Adjustment factor #2 NOT used.
Analysis Date 06-11-1999/16:15:32 Residue file dated: 06-11-1999/16:08:53/8
Reference dose (RfD, CHRONIC) = .0423 mg/kg bw/day
COMMENT 1: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA;
time-limited tolerances; no adjustments

Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
U.S. Population (total)	0.004339	10.3%
U.S. Population (spring season)	0.004182	9.9%
U.S. Population (summer season)	0.004479	10.6%
U.S. Population (autumn season)	0.004331	10.2%
U.S. Population (winter season)	0.004342	10.3%
Northeast region	0.004412	10.4%
Midwest region	0.004364	10.3%
Southern region	0.004502	10.6%
Western region	0.003957	9.4%
Hispanics	0.005003	11.8%
Non-hispanic whites	0.004158	9.8%
Non-hispanic blacks	0.004979	11.8%
Non-hisp/non-white/non-black)	0.004579	10.8%
All infants (< 1 year)	0.002664	6.3%
Nursing infants	0.000983	2.3%
Non-nursing infants	0.003371	8.0%
Children 1-6 yrs	0.008855	20.9%
Children 7-12 yrs	0.006238	14.7%
Females 13-19(not preg or nursing)	0.003923	9.3%
Females 20+ (not preg or nursing)	0.003217	7.6%
Females 13-50 yrs	0.003424	8.1%
Females 13+ (preg/not nursing)	0.003344	7.9%
Females 13+ (nursing)	0.003806	9.0%
Males 13-19 yrs	0.004595	10.9%
Males 20+ yrs	0.003860	9.1%
Seniors 55+	0.003177	7.5%
Pacific Region	0.003973	9.4%

Attachment 7: Chronic (Non-Cancer) Analysis, Anticipated Residues.

U.S. Environmental Protection Agency
 DEEM Chronic analysis for TETRACHLORVINPHOS
 Residue file: C:\DRESSAC\083701ar.R96
 Analysis Date 06-16-1999
 Reference dose (RfD) = 0.0423 mg/kg bw/day
 Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA:
 Anticipated residues; adjustment factor 2 corresponds to % livestock treated.

Food	Crop	Code	Grp	Food Name	RESIDUE (ppm)	Adj. Factors	
						#1	#2
317	O			Gelatin	0.382000	1.000	0.010
318	D			Milk-nonfat solids	0.020000	1.000	0.003
319	D			Milk-fat solids	0.020000	1.000	0.003
320	D			Milk sugar (lactose)	0.020000	1.000	0.003
321	M			Beef-meat byproducts	0.500000	1.000	0.010
322	M			Beef-other organ meats	0.500000	1.000	0.010
323	M			Beef-dried	0.382000	1.920	0.010
324	M			Beef-fat w/o bones	0.100000	1.000	0.010
325	M			Beef-kidney	0.500000	1.000	0.010
326	M			Beef-liver	0.380000	1.000	0.010
327	M			Beef-lean (fat/free) w/o bones	0.382000	1.000	0.010
328	M			Goat-meat byproducts	0.130000	1.000	0.160
329	M			Goat-other organ meats	0.130000	1.000	0.160
330	M			Goat-fat w/o bone	0.100000	1.000	0.160
331	M			Goat-kidney	0.130000	1.000	0.160
332	M			Goat-liver	0.010000	1.000	0.160
333	M			Goat-lean (fat/free) w/o bone	0.010000	1.000	0.160
334	M			Horsemeat	0.010000	1.000	0.160
336	M			Sheep-meat byproducts	0.130000	1.000	0.160
337	M			Sheep-other organ meats	0.130000	1.000	0.160
338	M			Sheep-fat w/o bone	0.100000	1.000	0.160
339	M			Sheep-kidney	0.130000	1.000	0.160
340	M			Sheep-liver	0.130000	1.000	0.160
341	M			Sheep-lean (fat free) w/o bone	0.010000	1.000	0.160
342	M			Pork-meat byproducts	0.500000	1.000	0.020
343	M			Pork-other organ meats	0.500000	1.000	0.020
344	M			Pork-fat w/o bone	0.100000	1.000	0.020
345	M			Pork-kidney	0.010000	1.000	0.020
346	M			Pork-liver	0.380000	1.000	0.020
347	M			Pork-lean (fat free) w/o bone	1.870000	1.000	0.020
355	P			Turkey-byproducts	1.270000	1.000	0.060
356	P			Turkey-giblets (liver)	1.270000	1.000	0.060
357	P			Turkey--fat w/o bones	6.940000	1.000	0.060
358	P			Turkey- lean/fat free w/o bones	1.720000	1.000	0.060
360	P			Poultry-other-lean (fat free) w/	1.720000	1.000	0.060
361	P			Poultry-other-giblets(liver)	1.270000	1.000	0.060
362	P			Poultry-other-fat w/o bones	6.940000	1.000	0.060
363	P			Eggs-whole	0.190000	1.000	0.060
364	P			Eggs-white only	0.190000	1.000	0.060
365	P			Eggs-yolk only	0.190000	1.000	0.060
366	P			Chicken-byproducts	1.270000	1.000	0.060
367	P			Chicken-giblets(liver)	1.270000	1.000	0.060
368	P			Chicken-fat w/o bones	6.940000	1.000	0.060
369	P			Chicken-lean/fat free w/o bones	1.720000	1.000	0.060
385	P			Chicken-giblets (excl. liver)	1.270000	1.000	0.060
398	D			Milk-based water	0.020000	1.000	0.003
424	M			Veal-fat w/o bones	0.100000	1.000	0.010
425	M			Veal-lean (fat free) w/o bones	0.382000	1.000	0.010
426	M			Veal-kidney	0.500000	1.000	0.010
427	M			Veal-liver	0.380000	1.000	0.010
428	M			Veal-other organ meats	0.382000	1.000	0.010
429	M			Veal-dried	0.382000	1.920	0.010
430	M			Veal-meat byproducts	0.382000	1.000	0.010

Attachment 7: Chronic (Non-Cancer) Analysis, Anticipated Residues.

449 P Turkey-other organ meats 1.270000 1.000 0.060

U.S. Environmental Protection Agency Ver. 6.76
DEEM Chronic analysis for TETRACHLORVINPHOS (1989-92 data)
Residue file name: C:\DRESSAC\083701ar.R96 Adjustment factor #2 used.
Analysis Date 06-16-1999/16:34:46 Residue file dated: 06-16-1999/16:33:15/8
Reference dose (Rfd, CHRONIC) = .0423 mg/kg bw/day
COMMENT 1: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA:
Anticipated residues; adjustment factor 2 corresponds to % livestock treated.
=====

Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
U.S. Population (total)	0.000101	0.2%
U.S. Population (spring season)	0.000094	0.2%
U.S. Population (summer season)	0.000108	0.3%
U.S. Population (autumn season)	0.000100	0.2%
U.S. Population (winter season)	0.000102	0.2%
Northeast region	0.000110	0.3%
Midwest region	0.000092	0.2%
Southern region	0.000107	0.3%
Western region	0.000093	0.2%
Hispanics	0.000123	0.3%
Non-hispanic whites	0.000093	0.2%
Non-hispanic blacks	0.000135	0.3%
Non-hisp/non-white/non-black)	0.000108	0.3%
All infants (< 1 year)	0.000061	0.1%
Nursing infants	0.000013	0.0%
Non-nursing infants	0.000082	0.2%
Children 1-6 yrs	0.000197	0.5%
Children 7-12 yrs	0.000143	0.3%
Females 13-19(not preg or nursing)	0.000091	0.2%
Females 20+ (not preg or nursing)	0.000081	0.2%
Females 13-50 yrs	0.000084	0.2%
Females 13+ (preg/not nursing)	0.000076	0.2%
Females 13+ (nursing)	0.000101	0.2%
Males 13-19 yrs	0.000096	0.2%
Males 20+ yrs	0.000089	0.2%
Seniors 55+	0.000079	0.2%
Pacific Region	0.000097	0.2%

Attachment 8: Carcinogenic Analysis, Time-Limited Tolerances.

U.S. Environmental Protection Agency
 DEEM Chronic analysis for TETRACHLORVINPHOS
 Residue file: C:\DRESSAC\083701r.R96
 Analysis Date 06-11-1999
 Q* = 0.00183
 Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA;
 time-limited tolerances; no adjustments

Food	Crop	Code	Grp	Food Name	RESIDUE (ppm)	Adj. Factors	
						#1	#2
317	O			Gelatin	2.000000	1.000	1.000
318	D			Milk-nonfat solids	0.050000	1.000	1.000
319	D			Milk-fat solids	0.050000	1.000	1.000
320	D			Milk sugar (lactose)	0.050000	1.000	1.000
321	M			Beef-meat byproducts	1.000000	1.000	1.000
322	M			Beef-other organ meats	1.000000	1.000	1.000
323	M			Beef-dried	2.000000	1.920	1.000
324	M			Beef-fat w/o bones	0.200000	1.000	1.000
325	M			Beef-kidney	1.000000	1.000	1.000
326	M			Beef-liver	0.500000	1.000	1.000
327	M			Beef-lean (fat/free) w/o bones	2.000000	1.000	1.000
328	M			Goat-meat byproducts	1.000000	1.000	1.000
329	M			Goat-other organ meats	1.000000	1.000	1.000
330	M			Goat-fat w/o bone	0.200000	1.000	1.000
331	M			Goat-kidney	1.000000	1.000	1.000
332	M			Goat-liver	0.500000	1.000	1.000
333	M			Goat-lean (fat/free) w/o bone	2.000000	1.000	1.000
334	M			Horsemeat	2.000000	1.000	1.000
336	M			Sheep-meat byproducts	1.000000	1.000	1.000
337	M			Sheep-other organ meats	1.000000	1.000	1.000
338	M			Sheep-fat w/o bone	0.200000	1.000	1.000
339	M			Sheep-kidney	1.000000	1.000	1.000
340	M			Sheep-liver	0.500000	1.000	1.000
341	M			Sheep-lean (fat free) w/o bone	2.000000	1.000	1.000
342	M			Pork-meat byproducts	1.000000	1.000	1.000
343	M			Pork-other organ meats	1.000000	1.000	1.000
344	M			Pork-fat w/o bone	0.200000	1.000	1.000
345	M			Pork-kidney	1.000000	1.000	1.000
346	M			Pork-liver	0.500000	1.000	1.000
347	M			Pork-lean (fat free) w/o bone	2.000000	1.000	1.000
355	P			Turkey-byproducts	2.000000	1.000	1.000
356	P			Turkey-giblets (liver)	2.000000	1.000	1.000
357	P			Turkey--fat w/o bones	7.000000	1.000	1.000
358	P			Turkey- lean/fat free w/o bones	3.000000	1.000	1.000
360	P			Poultry-other-lean (fat free) w/	3.000000	1.000	1.000
361	P			Poultry-other-giblets(liver)	2.000000	1.000	1.000
362	P			Poultry-other-fat w/o bones	7.000000	1.000	1.000
363	P			Eggs-whole	0.200000	1.000	1.000
364	P			Eggs-white only	0.200000	1.000	1.000
365	P			Eggs-yolk only	0.200000	1.000	1.000
366	P			Chicken-byproducts	2.000000	1.000	1.000
367	P			Chicken-giblets(liver)	2.000000	1.000	1.000
368	P			Chicken-fat w/o bones	7.000000	1.000	1.000
369	P			Chicken-lean/fat free w/o bones	2.000000	1.000	1.000
385	P			Chicken-giblets (excl. liver)	2.000000	1.000	1.000
398	D			Milk-based water	0.050000	1.000	1.000
424	M			Veal-fat w/o bones	0.200000	1.000	1.000
425	M			Veal-lean (fat free) w/o bones	2.000000	1.000	1.000
426	M			Veal-kidney	1.000000	1.000	1.000
427	M			Veal-liver	0.500000	1.000	1.000
428	M			Veal-other organ meats	1.000000	1.000	1.000
429	M			Veal-dried	2.000000	1.920	1.000
430	M			Veal-meat byproducts	1.000000	1.000	1.000

Attachment 8: Carcinogenic Analysis, Time-Limited Tolerances.

449 P Turkey-other organ meats 2.000000 1.000 1.000

U.S. Environmental Protection Agency Ver. 6.76
DEM Chronic analysis for TETRACHLORVINPHOS (1989-92 data)
Residue file name: C:\DRESSAC\083701r.R96 Adjustment factor #2 NOT used.
Analysis Date 06-11-1999/16:15:57 Residue file dated: 06-11-1999/16:08:53/8
Q* = 0.00183
COMMENT 1: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA;
time-limited tolerances; no adjustments
=====
Total exposure by population subgroup

Total Exposure		
Population Subgroup	mg/kg body wt/day	Lifetime risk (Q*= .00183)
U.S. Population (total)	0.004339	7.94E-06

Attachment 9: Carcinogenic Analysis, Anticipated Residues.

U.S. Environmental Protection Agency
 DEEM Chronic analysis for TETRACHLORVINPHOS
 Residue file: C:\DRESSAC\083701ar.R96
 Analysis Date 06-16-1999
 Q* = 0.00183
 Comment: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA:
 Anticipated residues; adjustment factor 2 corresponds to % livestock treated.

Food	Crop	Code	Grp	Food Name	RESIDUE (ppm)	Adj. Factors	
						#1	#2
317	O			Gelatin	0.382000	1.000	0.010
318	D			Milk-nonfat solids	0.020000	1.000	0.003
319	D			Milk-fat solids	0.020000	1.000	0.003
320	D			Milk sugar (lactose)	0.020000	1.000	0.003
321	M			Beef-meat byproducts	0.500000	1.000	0.010
322	M			Beef-other organ meats	0.500000	1.000	0.010
323	M			Beef-dried	0.382000	1.920	0.010
324	M			Beef-fat w/o bones	0.100000	1.000	0.010
325	M			Beef-kidney	0.500000	1.000	0.010
326	M			Beef-liver	0.380000	1.000	0.010
327	M			Beef-lean (fat/free) w/o bones	0.382000	1.000	0.010
328	M			Goat-meat byproducts	0.130000	1.000	0.160
329	M			Goat-other organ meats	0.130000	1.000	0.160
330	M			Goat-fat w/o bone	0.100000	1.000	0.160
331	M			Goat-kidney	0.130000	1.000	0.160
332	M			Goat-liver	0.010000	1.000	0.160
333	M			Goat-lean (fat/free) w/o bone	0.010000	1.000	0.160
334	M			Horsemeat	0.010000	1.000	0.160
336	M			Sheep-meat byproducts	0.130000	1.000	0.160
337	M			Sheep-other organ meats	0.130000	1.000	0.160
338	M			Sheep-fat w/o bone	0.100000	1.000	0.160
339	M			Sheep-kidney	0.130000	1.000	0.160
340	M			Sheep-liver	0.130000	1.000	0.160
341	M			Sheep-lean (fat free) w/o bone	0.010000	1.000	0.160
342	M			Pork-meat byproducts	0.500000	1.000	0.020
343	M			Pork-other organ meats	0.500000	1.000	0.020
344	M			Pork-fat w/o bone	0.100000	1.000	0.020
345	M			Pork-kidney	0.010000	1.000	0.020
346	M			Pork-liver	0.380000	1.000	0.020
347	M			Pork-lean (fat free) w/o bone	1.870000	1.000	0.020
355	P			Turkey-byproducts	1.270000	1.000	0.060
356	P			Turkey-giblets (liver)	1.270000	1.000	0.060
357	P			Turkey--fat w/o bones	6.940000	1.000	0.060
358	P			Turkey- lean/fat free w/o bones	1.720000	1.000	0.060
360	P			Poultry-other-lean (fat free) w/	1.720000	1.000	0.060
361	P			Poultry-other-giblets(liver)	1.270000	1.000	0.060
362	P			Poultry-other-fat w/o bones	6.940000	1.000	0.060
363	P			Eggs-whole	0.190000	1.000	0.060
364	P			Eggs-white only	0.190000	1.000	0.060
365	P			Eggs-yolk only	0.190000	1.000	0.060
366	P			Chicken-byproducts	1.270000	1.000	0.060
367	P			Chicken-giblets(liver)	1.270000	1.000	0.060
368	P			Chicken-fat w/o bones	6.940000	1.000	0.060
369	P			Chicken-lean/fat free w/o bones	1.720000	1.000	0.060
385	P			Chicken-giblets (excl. liver)	1.270000	1.000	0.060
398	D			Milk-based water	0.020000	1.000	0.003
424	M			Veal-fat w/o bones	0.100000	1.000	0.010
425	M			Veal-lean (fat free) w/o bones	0.382000	1.000	0.010
426	M			Veal-kidney	0.500000	1.000	0.010
427	M			Veal-liver	0.380000	1.000	0.010
428	M			Veal-other organ meats	0.382000	1.000	0.010
429	M			Veal-dried	0.382000	1.920	0.010
430	M			Veal-meat byproducts	0.382000	1.000	0.010

Attachment 9: Carcinogenic Analysis, Anticipated Residues.

449 P Turkey-other organ meats 1.270000 1.000 0.060

U.S. Environmental Protection Agency Ver. 6.76
DEEM Chronic analysis for TETRACHLORVINPHOS (1989-92 data)
Residue file name: C:\DRESSAC\083701ar.R96 Adjustment factor #2 used.
Analysis Date 06-16-1999/16:35:22 Residue file dated: 06-16-1999/16:33:15/8
Q* = 0.00183
COMMENT 1: Uncertainty Factors = 10X for interspecies, 10X for intra-species, 1X for FQPA:
Anticipated residues; adjustment factor 2 corresponds to % livestock treated.
=====

Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Lifetime risk (Q*= .00183)
U.S. Population (total)	0.000101	1.85E-07